MTH-603 Important Mcq's For Mid Term !! Solve By Vu-Topper RM!!

Question No:1 **(Marks:1)** **Vu-Topper RM**

In Jacobi's Method, we assume that the ……elements do not vanish.

A. Diagonal

B. Off-diagonal

C. Row

D. Column

Question No:2 **(Marks:1)** **Vu-Topper RM**

While solving a system of linear equations, which of the following approach is economical for the computer memory?

A. Direct

B. Iterative **Page 69**

C. Analytical

D. Graphical

Question No:3 **(Marks:1)** **Vu-Topper RM**

Back substitution procedure is used in …….

A. Gaussian Elimination Method

B. Jacobi's method

C. Gauss-Seidel method

D. None of the given choices

Question No:4 **(Marks:1)** **Vu-Topper RM**

If n x n matrices A and B are similar, then they have the same eigenvalues (with the same multiplicities).

A. True

B. False

Question No:5 **(Marks:1)** **Vu-Topper RM**

The basic idea of relaxation method is to reduce the largest residual to

A. One

B. Two

C. Zero **Page 83**

Question No:6 **(Marks:1)** **Vu-Topper RM**

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its____.

A. Main diagonal **Page 104**

B. last column

C. last row

D. first row

Question No:7 **(Marks:1)** **Vu-Topper RM**

If A is a nxn triangular matrix (upper triangular, lower triangular) or diagonal matrix, the eigenvalues of A are the diagonal entries of A.

A. TRUE

B. FALSE

Question No:8 **(Marks:1)** **Vu-Topper RM**

A 3 x 3 identity matrix have three and different eigen values.

A. TRUE

B. FALSE

Question No:9 **(Marks:1)** **Vu-Topper RM**

Which of the following is a reason due to which the LU decomposition of the system of linear equations; x+y = 1, x+y =2 is not possible?

A. Associated coefficient matrix is singular

B. All values of l's and u's can't be evaluated

C. Determinant of coefficient matrix is zero

D. **All are equivalent**

Question No:10 **(Marks:1)** **Vu-Topper RM**

Gauss - Jordan Method is similar to …

A. Gauss–Seidel method

B. Iteration's method

C. Relaxation Method

D. **Gaussian elimination method** **Page 95**

Question No:11 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is the largest Residual for 1st iteration on thev system; 2x+3y = 1, 3x +2y = - 4?

A. -4
B. **3**
C. 2
D. 1

Question No:12 **(Marks:1)** **Vu-Topper RM**

Gauss–Seidel method is also known as method of …

A. **Successive displacement** **Page 263**
B. Iterations
C. False position
D. None of the given choices

Question No:13 **(Marks:1)** **Vu-Topper RM**

Jacobi's Method is a/an…

A. **Iterative method** **Page 69**
B. Direct method

Question No:14 **(Marks:1)** **Vu-Topper RM**

The characteristics polynomial of a 3x 3 identity matrix is _____, if x is the eigen values of the given 3 x 3 identity matrix. where symbol ^ shows power.

A. (x-1)^3
B. (x+1)^3
C. **x^3-1**
D. x^3+1

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Question No:15 **(Marks:1)** **Vu-Topper RM**

They can be used only to find the eigenvalue of A that is largest in absolute value—we call this eigenvalue the dominant eigenvalue of A.

A. TRUE

B. FALSE

Question No:16 **(Marks:1)** **Vu-Topper RM**

In … method, a system is reduced to an equivalent diagonal form using elementary transformations.

A. Jacobi's

B. Gauss-Seidel

C. Relaxation

D. **Gaussian elimination** **Page 262**

Question No:17 **(Marks:1)** **Vu-Topper RM**

The linear equation: 2x+0y-2=0 has -------- solution/solutions.

A. **Unique** **Page 48**

B. no solution

C. infinite many

D. finite many

Question No:18 **(Marks:1)** **Vu-Topper RM**

Under elimination methods, we consider, Gaussian elimination and …methods.

A. Gauss-Seidel

B. Jacobi

C. **Gauss-Jordan elimination** **Page 48**

D. None of the given choices

Question No:19 **(Marks:1)** **Vu-Topper RM**

Which of the following method is not an iterative method?

A. Jacobi's method

B. Gauss-Seidel method

C. Relaxation methods
D. **Gauss-Jordan elimination method**

Question No:20 (Marks:1) Vu-Topper RM

An eigenvector V is said to be normalized if the coordinate of largest magnitude is equal to zero.

A. TRUE
B. **FALSE Page 97**

Question No:21 (Marks:1) Vu-Topper RM

Exact solution of 2/3 is not existing.

A. TRUE
B. FALSE

Question No:22 (Marks:1) Vu-Topper RM

When the condition of diagonal dominance becomes true in Jacobi's Method. Then its means that the method is …

A. Stable
B. Unstable
C. Convergent Page 70
D. Divergent

Question No:23 (Marks:1) Vu-Topper RM

Gauss–Seidel method is similar to …

A. Iteration's method
B. Regula-Falsi method
C. Jacobi's method
D. None of the given choices Page 263

Question No:24 (Marks:1) Vu-Topper RM

Sparse matrices arise in computing the numerical solution of …

A. Ordinary differential equations
B. Partial differential equations Page 69

C. Linear differential equations
D. Non-linear differential equations

Question No:25 (Marks:1) Vu-Topper RM

While solving by Gauss-Seidel method, which of the following is the first Iterative solution for the system; x-2y =1, x+4y=4 ?

A. (1, 0.75)
B. (0,0)
C. (1,0)
D. (0,1)

Question No:26 (Marks:1) Vu-Topper RM

While solving a system of linear equations by Gauss Jordon Method, after all the elementary row operations if there lefts also zeros on the main diagonal then which of the is true about the system?

A. System may have unique solutions
B. System has no solution
C. System may have multiple numbers of finite solutions
D. System may have infinite many solutions

Question No:27 (Marks:1) Vu-Topper RM

Numerical methods for finding the solution of the system of equations are classified as direct and … methods

A. Indirect
B. Iterative **Page 48**
C. Jacobi
D. None of the given choices

Question No:28 (Marks:1) Vu-Topper RM

If the Relaxation method is applied on the system; 2x+3y = 1, 3x +2y = -4, then largest residual in 1st iteration will reduce to -------.

A. Zero
B. 4

C. -1
D. -1

Question No:29 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is the Residuals for 1st iteration on the system; 2x+3y = 1, 3x +2y =4 ?

A. (2,3)
B. (3,-2)
C. (-2,3)
D. (1,4)

Question No:30 **(Marks:1)** **Vu-Topper RM**

If the order of coefficient matrix corresponding to system of linear equations is 33 then which of the following will be the orders of its decomposed matrices; 'L' and 'U'?

A. Order of 'L' = 31, Order of 'U' = 13
B. Order of 'L' = 32, Order of 'U' = 2*3
C. Order of 'L' = 33, Order of 'U' = 33
D. Order of 'L' = 34, Order of 'U' = 43

Question No:31 **(Marks:1)** **Vu-Topper RM**

While solving the system; x–2y = 1, x+4y = 4 by Gauss-Seidel method, which of the following ordering is feasible to have good approximate solution?

A. x+4y = 1, x-2y = 4
B. x+2y = 1, x- 4y =4
C. x+4y = 4, x–2y = 1
D. **No need to reordering**

Question No:32 **(Marks:1)** **Vu-Topper RM**

While solving the system; x–2y = 1, x+4y = 4 by Gauss-Seidel method, which of the following ordering is feasible to have good approximate solution?

A. **Complicated** **Page 51**
B. Easiest

Question No:33 **(Marks:1)** **Vu-Topper RM**
Full pivoting, in fact, is more …than the partial pivoting.
A. Easiest
B. Complicated **Page 51**

Question No:34 **(Marks:1)** **Vu-Topper RM**
For the equation X^3 +3x-1=0the root of the equation lies in the interval…
A. (1, 3)
B. (1, 2)
C. (0, 1)
D. (1, 2)

Question No:35 **(Marks:1)** **Vu-Topper RM**
lies in the category of iterative method.
A. Bisection Method
B. Regula Falsi Method
C. Secant Method
D. **All** **Page 8**

Question No:36 **(Marks:1)** **Vu-Topper RM**
If n x n matrices A and B are similar, then they have the different eigenvalues (with the same multiplicities).
A. TRUE
B. **FALSE**

Question No:37 **(Marks:1)** **Vu-Topper RM**
The Jacobi's method is a method of solving a matrix equation on a matrix that has ____zeros along its main diagonal.
A. **No** **Page 892**

B. At least one

Question No:38 **(Marks:1)** **Vu-Topper RM**

To apply Simpson's 3/8 rule, the number of intervals in the following must be

A. 10
B. 11
C. 12
D. 13

Question No:39 **(Marks:1)** **Vu-Topper RM**

The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric_____ definite matrices A.

A. **Positive**
B. negative

Question No:40 **(Marks:1)** **Vu-Topper RM**

Differences methods find the _____ solution of the system.

A. Numerical
B. Analytical

Question No:41 **(Marks:1)** **Vu-Topper RM**

To apply Simpson's 1/3 rule, the number of intervals in the following must be

A. **2** **Simpson rule**
B. 3
C. 5
D. 7

Question No:42 **(Marks:1)** **Vu-Topper RM**

Bisection and false position methods are also known as bracketing method and are always

A. Divergent

B. **Convergent** **Page 26**

Question No:43 **(Marks:1)** **Vu-Topper RM**

The Inverse of a matrix can only be found if the matrix is.

A. Singular
B. **None Singular**
C. Scalar
D. Diagonal

Question No:44 **(Marks:1)** **Vu-Topper RM**

In interpolation is used to represent the δ Forward difference Δ

A. **Central difference** **Page 117**
B. Backward difference

Question No:45 **(Marks:1)** **Vu-Topper RM**

The base of the decimal system is _____

A. **10**
B. 0
C. 2
D. 8

Question No:46 **(Marks:1)** **Vu-Topper RM**

Bisection method is … method

A. Open Method
A. **Bracketing Method** **Page 26**

Question No:47 **(Marks:1)** **Vu-Topper RM**

A 3 x 3 identity matrix have three and _____eigen values.

A. **Same**
B. different

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Question No:48 **(Marks:1)** **Vu-Topper RM**

Eigenvalues of a symmetric matrix are all _____ .

A. complex
B. zero
C. **Real** **Page 104**
D. positive

Question No:49 **(Marks:1)** **Vu-Topper RM**

The Jacobi iteration converges, if A is strictly diagonally dominant.

A. **TRUE** **Page 69**
B. FALSE

Question No:50 **(Marks:1)** **Vu-Topper RM**

Below are all the finite difference methods EXCEPT _____.

A. jacobi's method
B. **Newton's backward difference method**
C. Stirlling formula
D. Forward difference method

Question No:51 **(Marks:1)** **Vu-Topper RM**

Two matrices with the same characteristic polynomial need not be similar.

A. **TRUE**
B. FALSE

Question No:52 **(Marks:1)** **Vu-Topper RM**

The determinant of a diagonal matrix is the product of the diagonal elements.

A. **TRUE**
B. FALSE

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Question No:53 **(Marks:1)** **Vu-Topper RM**

The Gauss-Seidel method is applicable to strictly diagonally dominant or symmetric positive definite matrices A.

A. **TRUE**
B. FALSE

Question No:54 **(Marks:1)** **Vu-Topper RM**

The determinant of a __ matrix is the product of the diagonal elements.

A. **Diagonal** **Page 70**
B. Upper triangular
C. Lower triangular
D. Scalar

Question No:55 **(Marks:1)** **Vu-Topper RM**

For differences methods we require the set of values.

A. **TRUE**
B. FALSE

Question No:56 **(Marks:1)** **Vu-Topper RM**

If x is an eigen value corresponding to eigen value of V of a matrix A. If a is any constant, then x – a is an eigen value corresponding to eigen vector V is an of the matrix A - a I.

A. **TRUE**
B. FALSE

Question No:57 **(Marks:1)** **Vu-Topper RM**

Central difference method seems to be giving a better approximation; however, it requires more computations.

A. True
B. **False** **Page 71**

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Question No:58 **(Marks:1)** **Vu-Topper RM**

Iterative algorithms can be more rapid than direct methods.

A. **TRUE**
B. FALSE

Question No:59 **(Marks:1)** **Vu-Topper RM**

Central Difference method is the finite difference method.

A. **TRUE**
B. FALSE

Question No:60 **(Marks:1)** **Vu-Topper RM**

The Jacobi's method is a method of solving a matrix equation on a matrix that has no zeros along its main diagonal.

A. **TRUE** **Page 892**
B. FALSE

Question No:61 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the eigen vectors corresponding to eigen values are linearly independent.

A. **TRUE** **Page 102**
B. FALSE

Question No:62 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the eigen values are _____.

A. **Real and Distinct** **Page 102**
B. real and equal
C. positive and distinct
D. negative and distinct

Question No:63 **(Marks:1)** **Vu-Topper RM**

Simpson's rule is a numerical method that approximates the value of a definite integral by using polynomials.

A. **Quadratic** **Page 174**

B. Linear
C. Cubic
D. Quartic

Question No:64 **(Marks:1)** **Vu-Topper RM**

In Simpson's Rule, we use parabolas to approximating each part of the curve. This proves to be very efficient as compared to Trapezoidal rule.

A. **TRUE**
B. FALSE

Question No:65 **(Marks:1)** **Vu-Topper RM**

The predictor-corrector method an implicit method. (multi-step methods)

A. **TRUE** **Page 212**
B. FALSE

Question No:66 **(Marks:1)** **Vu-Topper RM**

Generally, Adams methods are superior if output at many points is needed.

A. **TRUE**
B. FALSE

Question No:67 **(Marks:1)** **Vu-Topper RM**

The Trapezoidal rule is a numerical method that approximates the value of a._____.

A. Indefinite integral
B. **Definite integral** **Page 176**
C. Improper integral
D. Function

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Question No:68 **(Marks:1)** **Vu-Topper RM**

The need of numerical integration arises for evaluating the definite integral of a function that has no explicit _____ or whose anti derivative is not easy to obtain.

A. **Antiderivative**
B. Derivatives

Question No:69 **(Marks:1)** **Vu-Topper RM**

An indefinite integral may _____ in the sense that the limit defining it may not exist.

A. **Diverge**
B. Converge

Question No:70 **(Marks:1)** **Vu-Topper RM**

An improper integral is the limit of a definite integral as an endpoint of the interval of integration approaches either a specified real number or ∞ or -∞ or, in some cases, as both endpoints approach limits.

A. **TRUE**
B. FALSE

Question No:71 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is the Residuals for 1st iteration on the system; 2x 3y = 1, 3x 2y =4 ?

A. **(2,3)**
B. (1,4)
C. (4,4)
D. (3,4)

Question No:72 **(Marks:1)** **Vu-Topper RM**

For the system of equations; x =2, y=3. The inverse of the matrix associated with its coefficients is----------.

A. **Singular**
B. Non-singular

C. Non identity

Question No:73 (Marks:1) Vu-Topper RM

The number of significant digits in the number 608.030060 is:

A. 7
B. 8
C. **9**
D. 1

Question No:74 (Marks:1) Vu-Topper RM

For two matrices A and B, such that "A = Inverse of B", then which of the following is true?

A. B=Inverse of A
B. A and B are not-singular
C. AB=Identity Matrix
D. **All choice is true**

Question No:75 (Marks:1) Vu-Topper RM

If a system of equations has a property that each of the equation possesses one large coefficient and the larger coefficients in the equations correspond to different unknowns in different equations, then which of the following iterative method id preferred to apply?

A. Gauss-Seidel method
B. Gauss-Jordon method
C. **Gauss elimination**
D. Croat's method

Question No:76 (Marks:1) Vu-Topper RM

Two matrices with the __ characteristic polynomial need not be similar.

A. **Same**
B. different

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Question No:77 **(Marks:1)** **Vu-Topper RM**

Which of the following method is simplest one to integrate numerically a given tabular function but give more error?

A. Rectangular method
B. **Trapezoidal method**
C. Simpson's 1/3 Rule
D. Simpson's 3/8 Rule

Question No:78 **(Marks:1)** **Vu-Topper RM**

At which of the following points the Minimum value of 2nd derivative of function f(x) = -(2/x) in the interval: [1,4] exits?

A. **At x=1**
B. At x=2
C. At x=3
D. At x=4

Question No:79 **(Marks:1)** **Vu-Topper RM**

The Gaussian elimination method fails if any one of the pivot elements becomes……?

A. **Zero**
B. One
C. Two
D. Five

Question No:80 **(Marks:1)** **Vu-Topper RM**

Gauss elimination and Gauss-Jordan methods are popular among many methods for finding the ……of a matrix.

A. Identity
B. Transpose
C. **Inverse**
D. None of the given choices

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Question No:81 **(Marks:1)** **Vu-Topper RM**

In Gauss-Seidel method, each equation of the system is solved for the unknown with -------- coefficient, in terms of remaining unknowns.

A. **largest**
B. Smallest
C. Any positive

Question No:82 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the Eigen vectors corresponding the Eigen values are linearly

A. Dependent
B. **Independent** **Page 6**

Question No:83 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the Eigen values are real and distinct.

A. False
B. **True** **Page 102**

Question No:84 **(Marks:1)** **Vu-Topper RM**

The Power method can be used only to find the eigenvalue of A that is largest in absolute value—we call this eigenvalue the dominant eigenvalue of A.

A. False
B. **True**

Question No:85 **(Marks:1)** **Vu-Topper RM**

If x is an eigenvalue corresponding to eigenvalue of V of a matrix A. If a is any constant, then x – a is an eigen value corresponding to eigen vector V is an of the matrix A - a I.

A. False
B. **True**

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Question No:86 **(Marks:1)** **Vu-Topper RM**

The dominant or principal eigenvector of a matrix is an eigenvector corresponding to the Eigen value of largest magnitude (for real numbers, largest absolute value) of that matrix,

A. False
B. **True**

Question No:87 **(Marks:1)** **Vu-Topper RM**

Eigen values of a_____ matrix are all real.

A. Antisymmetric
B. **Symmetric**
C. Rectangular
D. Triangular

Question No:88 **(Marks:1)** **Vu-Topper RM**

In Trapezoidal rule, the integral is computed on each of the sub-intervals by using linear interpolating formula, ie. For n=1 and then summing them up to obtain the desired integral.

A. False
B. **True**

Question No:89 **(Marks:1)** **Vu-Topper RM**

In Runge – Kutta Method, we do not need to calculate higher order derivatives and find greater accuracy.

A. False
B. **True**

Question No:90 **(Marks:1)** **Vu-Topper RM**

The Trapezoidal Rule is an improvement over using rectangles because we have much less "missing" from our calculations. We used _____ to model the curve in trapezoidal Rule.

A. **Straight lines**
B. curves

C. parabolas
D. constant

Question No:91 **(Marks:1)** **Vu-Topper RM**
Euler's Method numerically computes the approximate derivative of a function.
A. **False**
B. True

Question No:92 **(Marks:1)** **Vu-Topper RM**
Euler's Method numerically computes the approximate _____ of a function.
A. **Antiderivative**
B. Derivative
C. Error
D. Value

Question No:93 **(Marks:1)** **Vu-Topper RM**
If we wanted to find the value of a definite integral with an infinite limit, we can instead replace the infinite limit with a variable, and then take the limit as this variable goes to _____.
A. Constant
B. Finite
C. **Infinity**
D. Zero

Question No:94 **(Marks:1)** **Vu-Topper RM**
The Jacobi iteration _____, if A is strictly diagonally dominant.
A. **Converges**
B. diverges

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Question No:95 **(Marks:1)** **Vu-Topper RM**

By using determinants, we can easily check that the solution of the given system of linear equation exits and it is unique.

A. False

B. **True**

Question No:96 **(Marks:1)** **Vu-Topper RM**

Direct method can more rapid than iterative algorithms

A. False

B. **True**

Question No:97 **(Marks:1)** **Vu-Topper RM**

The dominant eigenvector of a matrix is an eigenvector corresponding to the eigenvalue of largest magnitude (for real numbers, smallest absolute value) of that matrix.

A. False

B. **True**

Question No:98 **(Marks:1)** **Vu-Topper RM**

The central difference method is finite difference method.

A. False

B. **True**

Question No:99 **(Marks:1)** **Vu-Topper RM**

The absolute value of a determinant (|detA|) is the product of the absolute values of the eigenvalues of matrix A

A. False

B. **True**

Question No:100 **(Marks:1)** **Vu-Topper RM**

Eigenvectors of a symmetric matrix are orthogonal, but only for distinct eigenvalues.

A. False

B. **True**

Question No:101 **(Marks:1)** **Vu-Topper RM**

Let A be an n ×n matrix. The number x is an eigenvalue of A if there exists a nonzero vector v such that _____.

A. Av = xv
B. **Ax = xv**
C. Av + xv=0
D. Av = Ax

Question No:102 **(Marks:1)** **Vu-Topper RM**

In Jacobi's Method, the rate of convergence is quite _____ compared with other methods.

A. **Slow**
B. Fast

Question No:103 **(Marks:1)** **Vu-Topper RM**

Numerical solution of 2/3 up to four decimal places is _____.

A. 0.667
B. 0.6666
C. **0.6667**
D. 0.66667

Question No:104 **(Marks:1)** **Vu-Topper RM**

Euler's method is only useful for a few steps and small step sizes; however, Euler's method together with Richardson extrapolation may be used to increase the _____.

A. **Order and accuracy**
B. Divergence

Question No:105 **(Marks:1)** **Vu-Topper RM**

The first langrage polynomial with equally spaced nodes produced the formula for _____.

A. Simpson's rule
B. **Trapezoidal rule**
C. Newton's method
D. Richardson's method

Question No:106 (Marks:1) Vu-Topper RM

The need of numerical integration arises for evaluating the indefinite integral of a function that has no explicit antiderivative or whose antiderivative is not easy to obtain.

A. False
B. **True**

Question No:107 (Marks:1) Vu-Topper RM

The Euler method is numerically unstable because of ____ convergence of error.

A. **Slow**
B. Fast
C. Moderate
D. No

Question No:108 (Marks:1) Vu-Topper RM

Adams – Bash forth is a multistep method.

A. False
B. **True**

Question No:109 (Marks:1) Vu-Topper RM

Multistep method does not improve the accuracy of the answer at each step.

A. **False**
B. True

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Question No:110 **(Marks:1)** **Vu-Topper RM**

Generally, Adams methods are superior if output at _____ points is needed.

A. **Many**
B. Two
C. Single
D. At most

Question No:111 **(Marks:1)** **Vu-Topper RM**

Symbol used for forward differences is

A. ∇
B. Δ **Page 12**
C. δ
D. μ

Question No:112 **(Marks:1)** **Vu-Topper RM**

The relationship between central difference operator and the shift operator is given by

A. $\delta = E - E^{-1}$
B. $\delta = E + E^{-1}$
C. δ =E1/2+E-1/2
D. **δ =E1/2-E-1/2** **Page 152**

Question No:113 **(Marks:1)** **Vu-Topper RM**

Muller's method requires --------starting points

A. 1
B. **3** **Page 41**
C. 2
D. 4

Question No:114 **(Marks:1)** **Vu-Topper RM**

If we retain r+1 terms in Newton's forward difference formula, we obtain a polynomial of degree ---- agreeing with y_x at x_0, x_1, ……. X_n.

A. r+2
B. **r**
C. r+1
D. r-1

Question No:115 (Marks:1) Vu-Topper RM

Octal number system has the base ----------

A. 2
B. 10
C. **8**
D. 16

Question No:116 (Marks:1) Vu-Topper RM

Rate of change of any quantity with respect to another can be modeled by

A. **An ordinary differential equation**
B. A partial differential equation
C. A polynomial equation
D. None of the given choices

Question No:117 (Marks:1) Vu-Topper RM

Adam-Moulton P-C method is derived by employing

A. **Newton's backward difference interpolation formula**
B. Newton's forward difference interpolation formula
C. Newton's divided difference interpolation formula
D. None of the given choices

Question No:118 (Marks:1) Vu-Topper RM

Newton Raphson method is …….. method

A. Bracketing Method
B. **Open**
C. Random
D. none

Question No:119 **(Marks:1)** **Vu-Topper RM**

Eigenvalue is

A. **Real**
B. Vector
C. odd
D. even

Question No:120 **(Marks:1)** **Vu-Topper RM**

Bisection and false position methods are also known as

A. **bracketing method**
B. open method
C. random

Question No:121 **(Marks:1)** **Vu-Topper RM**

If f (x) contains trigonometric, exponential or logarithmic functions then this equation is known as

A. **Transcendental equation** **Page 6**
B. Algebraic
C. Polynomial
D. Linear

Question No:122 **(Marks:1)** **Vu-Topper RM**

In interpolation δ is used to represent the

A. Forward difference
B. **Central difference**
C. Backward difference

Question No:123 **(Marks:1)** **Vu-Topper RM**

P in Newton's forward difference formula is defined as

A. **P=(x-x0)/h**
B. P=(x+x0/h
C. $P=(x+x_n)/h$
D. $P=(x-x_n)/h$

Question No:124 **(Marks:1)** **Vu-Topper RM**

Newton's divided difference interpolation formula is used when the values of the are

A. **Equally spaced**
B. Not equally spaced
C. Constant
D. None of the above

Question No:125 **(Marks:1)** **Vu-Topper RM**

Given the following data

X	0	1	2	4
F(x)	1	1	2	5

The value of f(2,4) is

A. 1.5
B. 2
C. **3**
D. 1

Question No:126 **(Marks:1)** **Vu-Topper RM**

They can be used only to find the Eigen value of A that is largest in absolute value—we call this Eigen value the dominant Eigen value of A.

A. False
B. **True**

Question No:127 **(Marks:1)** **Vu-Topper RM**

If the order of coefficient matrix corresponding to system of linear equations is 3*3 then which of the following will be the orders of its decomposed matrices; 'L' and 'U'?

A. Order of 'L' = 3*1, Order of 'U' = 1*3
B. Order of 'L' = 3*2, Order of 'U' = 2*3
C. **Order of 'L' = 3*3, Order of 'U' = 3*3**
D. Order of 'L' = 3*4, Order of 'U' = 4*3

Question No:128 **(Marks:1)** **Vu-Topper RM**

For the equation $x + 3x - 1 = 0$, the root of the equation lies in the interval.....

A. (1, 3)
B. (1, 2)
C. **(0, 1)**
D. (1, 2)

Question No:129 **(Marks:1)** **Vu-Topper RM**

If the root of the given equation lies between a and b, then the first approximation to the root of the equation by bisection method is

A. **a+b/2**
B. a-b/2
C. b-a/2
D. None of the given options

Question No:130 **(Marks:1)** **Vu-Topper RM**

Let A be an n ×n matrix. The number x is an eigenvalue of A if there exists a non-zero vector v such that _____.

A. Av = xv
B. Av + xv=0
C. Av = Ax1
D. **Av = λv**

Question No:131 **(Marks:1)** **Vu-Topper RM**

By using determinants, we can easily check that the solution of the given system of linear equation _____ and it is _____.

A. **Exits, unique**
B. Exists, consistent
C. Trivial, unique
D. Non trivial, inconsistent

Question No:132 **(Marks:1)** **Vu-Topper RM**

In …… method, the elements above and below the diagonal are simultaneously made zero.

A. Jacobi's
B. Gauss-Seidel
C. **Gauss–Jordon Elimination** **Page 59**
D. Relaxation

Question No:133 **(Marks:1)** **Vu-Topper RM**
Which of the following is equivalent form of the system of equations in matrix form; AX=B ?
A. XA = B
B. **X = B (Inverse of A)**
C. X = (Inverse of A)B
D. BX = A

Question No:134 **(Marks:1)** **Vu-Topper RM**
If the determinant of a matrix A is not equal to zero then the system of equations will have…….
A. **A unique solution**
B. Many solutions
C. Infinite many solutions
D. None of the given choices

Question No:135 **(Marks:1)** **Vu-Topper RM**
Sparse matrix is a matrix with …….
A. Some elements are zero
B. **Many elements are zero** **Page 69**
C. Some elements are one
D. Many elements are one

Question No:136 **(Marks:1)** **Vu-Topper RM**
How many Eigen vectors will exist corresponding to the function; Exp(ax) = e^ax, when the matrix operator is of differentiation?
A. **Infinite many**
B. Finite Multiple
C. None

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Question No:137 **(Marks:1)** **Vu-Topper RM**

Which of the following is the meaning of partial pivoting while employing the row transformations?

A. **Making the largest element as pivot** **Page 50**
B. Making the smallest element as pivot
C. Making any element as pivot
D. Making zero elements as pivot

Question No:138 **(Marks:1)** **Vu-Topper RM**

Differences methods are iterative methods.

A. False
B. **True**

Question No:139 **(Marks:1)** **Vu-Topper RM**

Eigenvalues of a _____ matrix are all real.

A. **Symmetric**
B. Anti-symmetric
C. Rectangular
D. Triangular

Question No:140 **(Marks:1)** **Vu-Topper RM**

For a system of linear equations, the corresponding coefficient matrix has the value of determinant; $|A| = 0$, then which of the following is true?

A. The system has unique solution
B. The system has finite multiple solutions
C. The system has infinite may solutions
D. **The system has no solution** **Page 48**

Question No:141 **(Marks:1)** **Vu-Topper RM**

For the system; $2x+3y = 1$, $3x +2y = -4$, if the iterative solution is (0,0) and 'dxi = 2' is the increment in 'y' then which of the following will be taken as next iterative solution?

A. (2,0)
B. (0,3)

C. (0,2)
D. **(1,-4)**

Question No:142 **(Marks:1)** **Vu-Topper RM**

While using Relaxation method, which of the following is increment 'dxi' corresponding to the largest Residual for 1st iteration on the system; 2x+3y = 1, 3x +2y = - 4 ?

A. -2
B. 2
C. **4**
D. 3

Question No:143 **(Marks:1)** **Vu-Topper RM**

If system of equations is inconsistent then its means that it has ……

A. **No Solutions**
B. Many solutions Infinite
C. Many solutions
D. None of the given choices

Question No:144 **(Marks:1)** **Vu-Topper RM**

Relaxation Method is a/an …….

A. Direct method
B. **Iterative method**

Question No:145 **(Marks:1)** **Vu-Topper RM**

The eigenvectors of a square matrix are the non-zero vectors that, after being multiplied by the matrix, remain …… to the original vector.

A. Perpendicular
B. **Parallel**
C. Diagonal
D. None of the given choices

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Question No:146 **(Marks:1)** **Vu-Topper RM**

In Jacobi's method after finding D1, the sum of the diagonal elements of D1 should be …… to the sum of the diagonal elements of the original matrix A.

A. Greater than
B. Less than
C. **Same** **Page 106**
D. Different

Question No:147 **(Marks:1)** **Vu-Topper RM**

In interpolation is used to represent the d Forward difference?

A. **Central difference**
B. Backward difference

Question No:148 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the eigen vectors corresponding to eigen values are linearly ----.

A. **Independent**
B. Dependent

Question No:149 **(Marks:1)** **Vu-Topper RM**

Power method is applicable if the Eigen vector corresponding to pigeon values Ara linearly independent

A. False
B. **True**

Question No:150 **(Marks:1)** **Vu-Topper RM**

In Jacobi method we assume that the_____ element does not vanish

A. **Diagonal**
B. off – Diagonal
C. Row
D. Column

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Question No:151 **(Marks:1)** **Vu-Topper RM**

In Jacobi method that rat off convergence is quit slow compared with other method

A. False

B. **True**

Question No:152 **(Marks:1)** **Vu-Topper RM**

White solving the system linear equation x-y=2, -x+y=3 By Jacobi method if (0, 0) be first approximate solution then which of that following is second approximate solution

A. **(2, 3)**

B. (0, 3)

C. (2, 0)

Question No:153 **(Marks:1)** **Vu-Topper RM**

The liner equation: 0x+0y = 2 has _____ solution

A. unique

B. **No solution**

C. infinite many

D. finite many

Question No:154 **(Marks:1)** **Vu-Topper RM**

When the condition of diagonal dominance become true in Jacobi method then it's means that the method is

A. stable

B. un- stable

C. **Convergent**

D. Divergent

Question No:155 **(Marks:1)** **Vu-Topper RM**

A series 16+8+4+2+1 is replaced by the series 16+8+4+2 then it is called

A. inherent error

B. local round of error

C. **local truncation error**

Question No:156 **(Marks:1)** **Vu-Topper RM**

If one root of the equal is 3-7i, then the other root will be

A. -3-7i
B. **-3+7i**
C. 3-7i
D. 3+7i

Question No:157 **(Marks:1)** **Vu-Topper RM**

The number system that has a base 2 is called _ system

A. octal
B. **Binary**
C. Decimal
D. Hexadecimal

Question No:158 **(Marks:1)** **Vu-Topper RM**

Which method required is derivative of that solution

A. Bisection method
B. Regular falsi method
C. Muller method
D. **Newton Raphson method**

Question No:159 **(Marks:1)** **Vu-Topper RM**

If the Relaxation method is applied on the system 2x+3y=1 3x+2y=-4 then largest residual in 1^{st} iteration will reduce to

Select the correct option

A. **Zero**
B. 4
C. -1
D. -1

Question No:160 **(Marks:1)** **Vu-Topper RM**

The number system that has a base 8 is called _ system

A. Decimal
B. **Octal**
C. Binary

Question No:161 **(Marks:1)** **Vu-Topper RM**

In Gauss Seidel method each equation of the system is solved for the unknown with _ coefficient in terms of remaining unknown

A. smallest
B. **largest**
C. any largest
D. any negative

Question No:162 **(Marks:1)** **Vu-Topper RM**

Which method is required a derivative of a solution?

A. Regular falsi method
B. **Neuton Raphson method**
C. Muller method
D. Bisection method

Question No:163 **(Marks:1)** **Vu-Topper RM**

If a system of equation has a property that each of the equation possesses one large coefficient in the equations correspond to different unknown in different equation then which of the following iterative method id preferred to apply?

A. Crout s method
B. **Gauss Seidel method**
C. Gauss – Jordan method
D. Gauss elimination method

Question No:164 **(Marks:1)** **Vu-Topper RM**

With the initial vector (0;0;0;) the residual would be

A. R1 = 2, R2 = 1, R3 = 1
B. R1 = 1, R2 = 3, R3 = 2
C. **R1 = 5, R2 = 9, R3 = 2**
D. R1 = 3, R2 = 2, R3 = 1

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Question No:165 **(Marks:1)** **Vu-Topper RM**

In full providing we interchange rows and columns such that the element in the matrix of the variable also get charged

A. **largest**
B. Middle
C. smallest
D. none of the given choice

Question No:166 **(Marks:1)** **Vu-Topper RM**

For the system 2x+3y=1 3x + 2y =-4 if the iterative solution is (0 ; 0,) and dxi =2 is the increment in y then which of the following will bi taken as next iterative so

A. (0;3)
B. **(0;2)**
C. (1;4)
D. (2;0)

Question No:167 **(Marks:1)** **Vu-Topper RM**

If the determinant of the matrix A is equal to zero then the system of equation will have ….

A. **No solution or infinitely many solution**
B. unique solution
C. infinite many solution
D. no solution

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